electronics + power

The Journal of the Institution of Electrical Engineers

VOLUME 19 1973

PAGINATION OF EACH ISSUE OF VOLUME 19

pages	*issue*	*IEE News number*	*pages*	*issue*	*IEE News number*
1-26	11th January	175	253-272	28th June	186
27-46	8th February	176	273-302	12th July	187
47-68	22nd February	177	303-350	9th August	188
69-88	8th March	178	351-380	6th September	189
89-114	22nd March	179	381-418	20th September	190
115-134	5th April	180	419-438	4th October	191
135-154	19th April	181	439-464	18th October	192
155-172	3rd May	182	465-490	1st November	193
173-200	17th May	183	491-520	15th November	194
201-232	31st May	184	521-544	29th November	195
233-252	14th June	185	545-568	13th December	196

The IEE is not as a body responsible for the opinions expressed in 'Electronics & Power', unless it is stated that an article or a letter officially represents the Council's views

Entries in the Index for items that have appeared in *IEE News* give the issue number in brackets followed by the page number of the issue

THE INSTITUTION OF ELECTRICAL ENGINEERS
Savoy Place, London WC2R 0BL, England
Publishing Department:
PO Box 8, Southgate House, Stevenage, Herts. SG1 1HQ, England

This publication is copyright under the Berne Convention and the International Copyright Convention. All rights reserved. Apart from any copying under the UK Copyright Act 1956, part 1, section 7, whereby a single copy of an article may be supplied, under certain conditions, for the purposes of research or private study, by a library of a class prescribed by the UK Board of Trade Regulations (Statutory Instruments, 1957, No. 868), no part of this publication may be reproduced, stored in a retrieval system or transmitted in any form or by any means without the prior permission of the copyright owners. Permission is, however, not required to copy abstracts of papers or articles on condition that a full reference to the source is shown.

Multiple copying of the contents of the publication without permission is always illegal.

© 1973: *The Institution of Electrical Engineers*

INDEX

VOLUME 19 1973

A

Acker, F.A.S.: Divine nature? (letter) 85
Addressing of journals (letter) (177) 4
Advanced transport technology by P. Cautley 546
Advances in fibre-optical communication systems by H.R.D. Sunak 528
Aleksander, I.: Brains, minds and machines 499
Allen, G.M.: Professional conduct (letter) (176) 5
Allen, J.E.: Electromagnetic paradox (letter) 561
Al-Tikriti, M.N.: Control applications (letter) (180) 4
Alternatives to coal (letter) 561
Aluminium in the electrical industry by H.E. Green 473
Ambisonic reproduction of sound by P.B. Fellgett 492
Anderson, A.: Professional conduct (letter) (175) 7
Anderson, C.N.: Quaestor criticised (letter) 194
Annual General Meeting of the IEE, 1973 (186) 16
Annual Report 419
Archer, P.A.: Curious motor (letter) 343
Arklow, P.: Through a glass lightly (letter) 35
ASEE/UKAPE amalgamation (letter) (188) 3
Ashby, E.W.: Motors in industry (letter) 21
Ashwell, D.G.: Mathematics education (letter) 111
Aspen, H.: Unexplained phenomenon (letter) 21
Assessing performances (letters) 509
Assessing performance—the examiner, too, is human by E. Fairbrother 357
Authors analysed (letter) (192) 19
Ayre, D.C.: A systems approach to signal generation 278

B

Bailey, A.G.: Colloid thrusters—a new space propulsion system 281
Bamji, P.J.F.: Value for money? (letter) (194) 4
Banks, J.: Electric power transmission—the elegant alternative (193) 4
Banks, J. IEE Power Divisional Chairman 1973–74 (193) 4
Bardeen, J.: A whole series of breakthroughs—invention of the transistor 57
Baseley, A.D., and Oliver, A.F.J.: A revolution in digital recording 245
BBC gets down to fundamentals 483
Beale, H.K.: The realities of underground cables 163
Beard, P.H.: What is an engineer? (letter) (176) 5
Bell, D.A.: Assessing performance (letter) 509
Bell, D.A.: Interviewing strategy (letter) 297
Bell, D.A.: Magnetic suspension (letters) 405, 535
Bell, D.A.: Practical ideas (letter) 374
Bellairs, G.ff.: Supply and demand (letter) 228
Bellairs, G.ff.: Trade unions (letter) 373
Beney, C.: Council elections (letter) (188) 3
Bennett, P.A., and Jones, G.: Thyristors in action—motor-control applications 399
Beresford, W.L.: Engineers and unions (letter) (175) 7
Berry, D.: Private-generation costs (letter) 169
Better protection (letter) 481
Betts, J.A., and Perry, D.J.: Facsimile transmission over a simulated h.f. radio circuit 143
Beynon, J.D.E.: Charge-coupled devices 188
Birkenshaw, D.C.: Engineering landmarks (letter) 65
Black marks (letters) 150, 248, 456
Blackened leads (letter) 536
Brockbank, P.E.: Small black mark (letter) 456
Blower, R.W.: This business of distribution switchgear 9
Bolton, D., and Oakes, F. (see Oakes)
Bonson, H.G.: Black marks (letter) 248
Books received 404
Bowyer, A.W.: Power distribution in industrial complexes 94
Brains, minds and machines by I. Aleksander 499
Brattain, W.: Offspring of the physics revolution 58
Bray, W.J.: International telecommunication development 73
Brown, K. J.: Domestic electric lamp (letter) 64
Bruce, C.E.R.: Electricity in astronomy (letter) 35
Bulleid, H.A.V.: An obvious case 103
Bulleid, H.A.V.: Rescue operations 469
Bulleid, H.A.V.: Top secretaries 241
Bullock, C.J., and Taylor, J.: M.O.S. challenged (letter) 342
Bundey, D.A.: Curious motor (letter) 430
Burdon, I.P.: E & P costs (letter) 298
Burnby, M.W.: Complete engineer (letter) 343
Burville, P.J.: Blackened leads (letter) 536
Bylaw changes (191) 2
Bywater, I.G.: Cover picture (letter) 248

C

Cables, underground, the realities of by H.K. Beale 163
Candidates for election and transfer (175) 6, (176) 4, (179) 7, (180) 22, (181) 15, (182) 12, (183) 15, (184) 13, (185) 12, (186) 14, (187) 2, (188) 26, (190) 19, (191) 22, (192) 22, (193) 23, (194) 21, (195) 18
Capacitance variation (letters) 64, 194
Capital requests (letter) 194
Career prospects in Commonwealth universities by P.D.C. Wilson 82
Career prospects (letters) 150, 261
Carr, T.H.: Vesting-day memories (letter) 194
Carson, W.: Domestic hazards (letter) 22
Cautley, P.: Advanced transport technology 546
CEEFAX—a broadcast information service by P. Rainger 274
CEI survey (letters) (188) 3
Chalmers, R.J.: Etiquette (letter) (177) 4
Chamberlain, J.: Quaestor's quadraphonic query (letter) 297
Chamberlain, T.: Professional conduct (letter) (182) 10
Chapman, M.J.: M.O.S. circuits in industrial and domestic control 238
Charge-coupled devices by J.D.E. Beynon 188
Clark, W.A.: Unexplained phenomenon (letter) 64
Coal and electricity (letter) 150
Coal costs (letter) 36
Coal—safe or dangerous fuel? by K. Dybczyńska 453
Coal—the backbone of electricity generation? by D. Ezra 107
Coleman, J.P.: Helping inventive engineers 362
Colloid thrusters—a new space propulsion system by A.G. Bailey 281
Comber, C.T.T.: More phenomena (letter) 298
Communication in industry—1. Management by E.G. Semler 13
Communication in industry—2. Design by E.G. Semler 185
Communication in industry—3. Publicity by E.G. Semler 423
Complete engineer (letter) 343
Component sense 173
Component standards (letter) 150
Component, which? The evaluation of electronic components by W. Crabb 80
Computer conference 233
Computers and communication—convergence or conflict? by J.R. Pollard (192) 4
Computer-drawn maps for the blind by J.L. Douce and J.M. Gill 331
Computer industry 303
Computer programming as an engineering discipline by C.A.R. Hoare 316
Computer, the, as an interactive management tool by P. Losty 307
Conduction in amorphous materials by Sir Nevill Mott 321
Conroy, J.: Environmental hypocrites (letter) 342
Constant change (letter) 481
Control activity (letter) (194) 4
Control applications (letters) (180) 4, (182) 11, (183) 11, (185) 12, (187) 3, (188) 3
Controlling television cameras—towards the automated studio by R.H. Ince and I.R. Young 395
Cooper, A.R.: A seat on the board 41
Cooper, A.R.: Education for what? 428
Cooper-Jones, D.L.: Capital requests (letter) 194
Cooper, W.F.: Electrical-safety engineering 225
Coppin, A.C.: Vesting-day memories (letter) 343
Cornish, L.S.: Quaestor's quadraphonic query (letter) 261
Corporate membership, notes on (184) 14
Council elections (letter) (188) 3
Counter-timer—a powerful measuring instrument by D.R. Creesey 479
Cover picture (letter) 248
Cox, H.N.: Proc. IEE a misnomer? (letter) 374
Crabb, W.: Which component? The evaluation of electronic components 80
Crawford, J.J.: Total energy—a realistic answer to fuel conservation 210
Creative failure methodology by W. Shockley 59
Creesey, D.R.: Counter-timer—a powerful measuring instrument 479
Curious motor (letters) 343, 430, 510
Current in the neutral conductor (letter) 129
Current problems (letter) 22

D

Dent, R.P. (see Myers)
Design, 2.—Communication in industry by E.G. Selmer 185
Daniel, D.W.: Preparing engineers for a career 222
Data communication by packet switching by P.T. Kirstein 503
Davidson, G.: Quaestor's quadraphonic query (letter) 111
D.C. machines, operating limits of by J.W. Pratt 366
D.D.C.—a reality (letter) 374
Decisions in technology 89
Dick, A.L.: Engineers and unions (letter) (179) 4
Digital communication, modern techniques in by R.G. Rolls 466
Digital recording, a revolution in by A.D. Baseley and A.F.J. Oliver 245
Dignum, R.: Capacitance variation (letter) 64
Dinsdale, J.: Quaestor's quadraphonic query (letter) 298
Direct digital control of a boiler—a myth or a reality? by A. Mukherji 206
Distribution of electricity by A.G. Milne 440
Divine nature? (letters) 65, 85, 111, 129, 169
Dixon, R.: Supply and demand (letter) 149; Education views (letter) 561
Domestic hazards (letters) 22, 111, 248
Domestic wiring (letter) 248
Double standards (letter) (187) 3
Douce, J.L., and Gill, J.M.: Computer-drawn maps for the blind 331
Downes, F.A.: Storage heaters (letter) 342
Driving ambition (letters) 261, 344
Dunkley, I.: Exhibition views (letter) 64
Dunn, G.J.: Winding temperatures (letter) 85
Dybczyńska, K.: Coal—safe or dangerous fuel? 453

E

E & P costs (letters) 298, 374
E & P delivery (letter) (176) 5
Eastwood, Sir Eric: Looking to the future (175) 1
Educational requirements of chartered electrical engineers by K.C. Jones (193) 22
Educational requirements for IEE membership by K.C. Jones (180) 17
Education for what? by A.R. Cooper 428
Education for what? (letter) 535
Education views (letter) 561
Edward, L.N.M.: Measuring audio-power flow 110
Edwards, J.B.: Control applications (letter) (188) 3
Edwards, J.D.: Magnetic suspension (letter) 405
Elections and transfers (175) 5, (176) 1, (178) 27, (180) 20, (182) 22, (183) 14, (185) 14, (186) 14, (187) 2, (188) 24, (189) 28, (194) 21
Electrical contracting 201
Electrical contractors—the vital link by D. Pitts 215
Electrical engineering contracts—random thoughts on the IEE/IMechE Model Forms by K.F.A. Johnston 313
Electricity in astronomy (letter) 35
Electricity-supply industry 47
Electricity-supply industry (letter) 344
Electric power transmission—the elegant alternative by J. Banks (193) 4
Electrogasdynamics, energy from by P.J. Musgrove 327
Electromagnetic paradox (letters) 456, 561
Electronic-components industry 155
Electronic conduction in biological systems by R. Pethig 445
Electronics abbreviations 351
Electronics and the motor car 253
Electronics & Power (letter) 36
Electronics industry on stamps by M.W. Martin 166
Electronics in medicine—some recent trends by D. Hill 99
Electronics manufacturing companies 115
Electronics observations 351
Electronic telephone exchanges 273
Elliott, A.R.: Eurovision—an exercise in co-operation 146
Endersby, J.C.: Professional conduct (letter) (176) 5
Endersby, J.C.: Rules of conduct (letter) (194) 4
Energy crisis 173
Energy-crisis debate 381
Engineering education—the French way by E.D. Sims and H.A. Kemhadjian 550
Engineering institutions (letters) (176) 5, (178) 4
Engineering landmarks (letters) 21, 65
Engineering responsibility (letters) 193, 297
Engineering training (letter) 344; v. science (letter) 64, 129
Engineers and unions (letters) (175) 7, (179) 4, (182) 10
Engineers' status (letter) (193) 23
Environment 233
Environmental hypocrites (letter) 342
ERA marches onward 439
Ethereal model (letter) 85
Etiquette (letter) (177) 4
Eurovision—an exercise in co-operation by A.R. Elliott 146
Evaluation of electronic components, the—which component? by W. Crabb 80
Evans, F.J.: Control activity (letter) (194) 4
Evans, J.E.: Professional conduct (letter) (179) 4
Exhibition views (letters) 64, 85
Exploring the deep oceans by K. Haigh 218
Ezra, D.: Coal—the backbone of electricity generation? 107

F

Facsimile transmission over a simulated h.f. radio circuit by J.A. Betts and D.J. Perry 143
Facts on FAX (letter) 374
Fairbrother, E.: Assessing performance—the examiner, too, is human 357
Fairbrother, E.: Engineering responsibility (letter) 193
Fall of Rome, a control engineer's view of the by J.S. Packer 386
Faraday Medallist & Honorary Fellow (176) 1
Farvis, W.E.J.: The semiconductor revolution—the social and economic impact of the transistor 52
Feather, V.: The future pattern of trade unionism 262
Feedback (175) 7, (176) 5, (177) 4, (178) 4, (179) 4, (180) 4, (183) 10, (185) 12, (187) 3, (188) 3, (189) 26, (192) 19, (193) 23, (194) 4
Fellgett, P.B.: Ambisonic reproduction of sound 492
Fellgett, P.B. Curious motor (letter) 430
Fellgett, P.B.: Quaestor's quadraphonic query (letter) 169
Fellgett, P.B.: Soundproof wiring (letter) 374
Fellgett, P.B.: Total energy (letter) 344
Ferguson, T.: Addressing of journals (letter) (177) 4
Fey, D.A.E.: Transfer dilemma (letter) (193) 23
Fibre-optical communication systems, advances in by H.R.D. Sunak 528
Finney, D.: Static-inverter systems for emergency supplies 32
Fisher, W.: Which way now for Poland's electricity industry 288
Fitch, R.A.: Capacitance variation (letter) 194
Fletcher, A.P.: Divine nature? (letter) 129
Forces in d.c. machines (letter) 509
Ford, W.: Mathematics education (letter) 23
Fowler, G.H.: Professional conduct (letters) (176) 5, (182) 10
Fowler, G.H.: Vanishing trick (letter) 430
Fraser, G.L.: Minicomputers in control 6

G

Gaitskell, R.: A time of crisis—the nationalisation of electricity 77
Gallagher, J.: Magnetic suspension (letter) 481
Galpin, G.S.: High-voltage power supplies 555
Gamlin, J.F.: Electricity-supply industry (letter) 344
Gange, H.G.: Divine nature? (letter) 65
Gange, H.G.: Engineering responsibility (letter) 297
Gelade, G.A.: Poetry parade (letter) (176) 5
Gibbs, F.S.: Switchgear-engineering science as a profitable business 381
Gilbert, J.F.: Engineering v. science (letter) 129
Gill, J.M., and Douce, J.L. (see Douce)
Gledhill, F.G.: CEI survey (letter) (188) 3
Gledhill, F.G.: Trade unions (letter) 373
Godfrey, R.L.: Engineering institutions (letter) (176) 5
Golpin, E.S.: High-voltage power supplies 559
Good frog bad 521
Gough, D.F.: Coal and electricity (letter)
Gould, J.W.: Tranmission-line impedance measurement at microwave frequencies 363
Gray, J.: Divine nature? (letter) 169
Green, H.E.: Aluminium in the electrical industry 473
Green, H.E.: Winding temperatures (letter) 23
Grew, R.J.M.: Remote control by computer 391
Guest, B.D.: More black marks (letter) 374

H

Haigh, F.R.: Vesting-day memories (letter) 344
Haigh, K.: Exploring the deep oceans 218
Harker, K.: Engineering training (letter) 344
Hawkins, A.: We will use coal if the price is right 108
Hawley, W.G.: Odes to remember (letter) (189) 26
Haynes, A.J. (see Myers)
Head, J.E.: E & P costs (letter) 374
Heat pipe, the—a new tune on an old pipe by R. Kemp 325
Heighes, J.: Constant change (letter) 481
Heimer, H.: Nominal voltages (letter) 129
Helping inventive engineers by J.P. Coleman 362
Hewitt, P.J.: E & P costs (letter) 374
Hewitt, P.J.: Waste of time (letter) 481
Hewitt, P.J.: Engineering institutions (letter) (178) 4
Hewling, R.L.: Vesting-day memories (letter) 261
Hidden, A.E.: Black marks (letter) 248
High-speed transport—are we on the right lines? by P.L. Hollingbery 420
High-speed transport (letters) 510, 535
High-voltage power supplies by G.S. Galpin 555
Hill, D.: Electronics in medicine—some recent trends 99
Hingley, P.D.: High-speed transport (letter) 536
Hingley, P.D.: M.O.S. challenged (letter) 342
Hoare, C.A.R.: Computer programming as an engineering discipline 316
Hockenhull, N.C.: Machine maintenance (letter) 342
Holland, A., and Midgley, D.: Current in the neutral conductor (letter) 129
Holland, M.: Mechanising Britain's postal services 425
Hollingbery, P.L.: High-speed transport—are we on the right lines? 420
Holmes, R.: Professional conduct (letter) (175) 7
Holt, B.: Microelectronics today 60
Horwood, H.: Pensions (letter) (176) 5
Hovertrain project 273
Huddart, K.W.: Traffic control and surveillance on motorways 257
Hughes, E.: Forces in d.c. machines (letter) 509
Humphries, H.M.: Career prospects (letter) 150
Hutcheon, I.C.: Process-control instrumentation 123
Hutt, A.J.: Engineering responsibility (letter) 193

I

IEE Annual Dinner (178) 1
IEE Annual Report (182) 3
IEE Control & Automation Divisional Chairman 1973-74. J.F. Roth (192) 4
IEE Conversazione (187) 1
IEE Council and Divisional Boards 1973-74 (190) 22
IEE diary (175) 2, (176) 2, (177) 2, (178) 2, (179) 2, (180) 2, (181) 2, (182) 2, (183) 2, (184) 2, (185) 2, (186) 15, (187) 16, (188) 4, (189) 4, (190) 2, (191) 2, (192) 2, (193) 2, (194) 2, (195) 2, (196) 2
IEE Divisional chairmen, 1973-74 (189) 3
IEE Electronics Divisional Chairman 1973-74. J.R. Pollard (192) 4
IEE Library news (175) 6, (176) 14, (188) 4, (189) 3
IEE Membership (letter) (182) 11
IEE Power Divisional Chairman 1973-74. J. Banks (193) 4
IEE President 1973-74. A.G. Milne (189) 2
Ince, R.H., and Young, I.R.: Controlling television cameras—towards the automated studio 395
Individual in research (letter) 228
Industrial news 2, 28, 48, 70, 90, 116, 136, 156, 174, 202, 234, 254, 291, 334, 369, 407, 431, 457, 484, 511, 563
INSPEC's RETROSPEC 1 (186) 1
Internepcon Europa exhibition 295
Internepcon/UK 73 465
Interviewing strategy for engineering staff by F. Oakes and D. Bolton 182
Interviewing strategy (letter) 297
Invention of the transistor, a whole series of breakthroughs by J. Bardeen 57
Inventors wanted (letter) 536

J

James, L.W.: Large turbine generators—the British story 304
Jensen, R.: Private generation costs (letter) 194
Jervis, M.W.: D.D.C.—a reality (letter) 374
Johnston, K.F.A.: Electrical-engineering contracts—random thoughts on the IEE/IMechE Model Forms 313
Jones, G., and Bennett, P.A. (see Bennett) 399
Jones, J.C.: Motors in industry (letter) 21
Jones, K.C.: Educational requirements for IEE membership (180) 17
Jones, K.C.: Educational requirements of Chartered Electrical Engineers (193) 22
Jones, O.E.: Ethereal model (letter) 85

K

Kear, M.J.: Understanding losers 359
Kemhadjian, H.A. (see Sims)
Kemp, R.: The heat pipe—a new tune on an old pipe 325
King, G.: Poetry or verse? (letter) (179) 4
Kinsey, M.: Mathematics education (letter) 35
Kirstein, P.T.: Data communication by packet switching 503
Knight, H.E.: Engineering landmarks (letter) 21
Knox, A.B.: Domestic hazards (letter) 111
Knox, K.A.T. Semiconductor devices in a hostile electrical environment 557
Kosciecha, R., and Spencer, A.J.: Domestic wiring (letter) 248

L

Laboratory space (letter) 406
Laithwaite, E.R.: Magnetic or electromagnetic?–the great divide 310
Laithwaite, E.R.: Man made or God made? 17
Langman, R.D.: Control applications (letter) (185) 12
Lappin, P.R.: New trends in relay technology 450
Large turboalternators (letter) 430
Lasers, understanding by M.J. Kear 359
Law, B.: Quaestor's smell (letter) 85
Legal note (letters) (180) 4, (183) 11
Leigh, J.R.: Control applications (letter) (187) 3
Lejeune, S.M.: Lightweight value (letter) 456
Lewis, C.J.: Engineers' status (letter) (193) 23
Lightweight value (letter) 456
Lindley, B.C.: Electricity in astronomy (letter) 36
Looking to the future by Sir Eric Eastwood (175) 1
Losty, P.: The computer as an interactive management tool 307
Lovering, W.F.: Assessing performance (letter) 509
Luker, A.E.T.: Coal costs (letter) 36

M

McCarthy, S.F.: Quaestor's quadraphonic query (letter) 298
McDonald, F.G.: Electronics & Power (letter) 36
McDonnell, E.T.M.: The art of p.r. (letter) 561
McKenzie, D.M.: Unexplained phenomenon (letter) 64
McKenzie Smith, I.: Teacher training (letter) (177) 4
McLean, Sir Francis: Component standards (letter) 150
Machine as master (letter) 510
Machine maintenance (letter) 342
Magnetic or electromagnetic?–the great divide by E.R. Laithwaite 310
Magnetic suspension (letters) 405, 481, 535
Maintaining electrical machines–the need for systematic planning by W.P. Tholen 159
Management, 1–Communication in industry by Semler, E.G. 185
Management–the other side 27
Management topics (letter) 111
Man made or God made? by E.R. Laithwaite 17
Martin, C.J.B.: Trade unions (letter) 194 (18)
Martin, M.W.: The electronics industry on stamps 166
Martin, R.E.: Curious motor (letter) 430
Martin, T.G.: Legal note (letter) (180) 4
Mathematical formulas 351
Mathematics education (letters) 23, 35, 65, 85, 111
Mathieson, E.J.: Engineers and unions (letter) (182) 10
Maxwell-Irving, A.M.T.: Professional conduct (letter) (182) 10
Measuring audio-power flow by L.N.M. Edward 110
Mechanising Britain's postal services by M Holland 425
Meyers, F., Dent, R.P., and Haynes, A.J.: Education views (letter) 561
Microelectronics today by B. Holt 60
Microwave '73 exhibition 277
Midgley, D., and Holland, A.: Current in the neutral conductor (letter) 129
Miller, L.F.: Protecting the purchaser (letter) 456
Miller, M.R.: Individual in research (letter) 228
Miller, P.: Curious motor (letter) 510
Miller, P.: Facts on FAX (letter) 374
Miller, P.: Mathematics education (letter) 85
Milne, A.G.: Distribution of electricity 440
Milne, A.G.: IEE President, 1973-74 (189) 2
Minicomputers in control by G.L. Fraser 6
Minter, R.W.: Quaestor's quadraphonic query (letter) 169
Minter, R.W.: Technical journalism (letter) 35
Moir, J.: Quaestor's quadraphonic query (letter) 297
More black marks (letter) 374
More phenomena (letter) 298
Mortimer, M.: Thyristor variable-speed drives 525
Morton, C.P.: Professional conduct (letter) (178) 4
M.O.S. challenged (letters) 342, 481
M.O.S. circuits in industrial and domestic control by M.J. Chapman 238
M.O.S. system reduces exhaust pollution by M. Williams 264
Motors in industry (letters) 21
Motor protection, choosing the right by J.B. Souter 476
Mott, Sir Nevill: Conduction in amorphous materials 321
Mukherji, A.: Direct digital control of a boiler–a myth or a reality? 206
Musgrove, P.J.: Energy from electrogasdynamics 327

N

Nationalisation of electricity, the–a time of crisis by R. Gaitskell 77
Nature confronted 1
Naylor, R.: Semiconductor digital circuits from discrete transistors to I.s.i. 178
Newmann, M.A.: Magnetic suspension (letter) 535
New products 24, 44, 66, 86, 112, 132, 152, 171, 196, 230, 250, 270, 299, 345, 378, 413, 436, 461, 488, 517, 541, 566
Nicholson, C.H.: Quaestor's quadraphonic query (letter) 298
Nominal voltages (letter) 129
Nomination of candidates for election to the Council (181) 12
Nominations to the Divisional Boards (183) 12
Norris, P.M.: IEE membership (letter) (182) 11
Norris, T.E.: What is an engineer? (letter) (176) 5
Noton, G.J.: Control applications (letter) (183) 11
Noton, M.: Control applications (letter) (180) 4
Nwachuku, M.A.: Career prospects (letter) 261
Nye, D.: Legal note (letter) (183) 11

O

Oakes, F., and Bolton, D.: Interviewing strategy for engineering staff 182
Obituary (175) 4, (176) 18, (177) 8, (178) 4, (179) 4, (180) 23, (181) 15, (182) 11, (183) 14, (184) 23, (185) 2, (187) 20, (188) 30, (190) 18, (191) 21, (192) 19, (193) 24, (194) 22, (195) 23
Obvious case, an by H.A.V. Bulleid 103
Odes to remember (letter) (189) 26
Officers of the Institution, 1973-74 (194) 24
Offspring of the physics revolution by W. Britain 58
Oliver, A.F.J., and Baseley, A.D. (see Baseley)
Operating limits of d.c. machines by J.W. Pratt 366
Origins of radar (letter) 36
Out of the wilderness–the contribution of technology to a developing country by J.F. Roth (192) 4
Overhead lines for the Supergrid by A.G. Reading 352
Overshott, K.J.: Authors analysed (letter) (192) 19
Oxley, G.C.: Origins of radar (letter) 36

P

Packer, J.S.: A control engineer's view of the fall of Rome 386
Page, F.W.: Vesting-day memories (letter) 406
Parkes, T.: Publicity (letter) 510
Parnaby, J.: Control applications (letter) (183) 11
Parr, F.E.: Quaestor's metric attack (letter) 344
Peacock, J.V.: Quaestor's quadraphonic query (letter) 297
Peck, P.E.: Unexplained phenomenon (letter) 21
Pensions (letter) (176) 5
Penzig, O.D.: Professional conduct (letter) (177) 4
Pepworth, F.J.: Poetic sliderule (letter) (182) 11
Perry, D.J., and Betts, J.A. (see Betts)
Pethig, R.: Electronic conduction in biological systems 445
Phillips, J.C.: Mathematics education (letter) 35
Philp, M.A.: High-speed transport (letter) 535
Picture transmission (letter) 343
Pickett, C.C.: The impact of the transistor on telecommunication 495
Pitts, D.: Electrical contractors–the vital link 215
Pocock, R.F.: The evolution of the radio aerial 120
Poetic sliderule (letter) (182) 11
Poetry parade (letter) (176) 5
Poetry or verse? (letter) (179) 4
Poland's electricity industry, which way now for? by W. Fiszer 288
Polgreen, G.R.: Magnetic suspension (letter) 405
Pollard, J.R.: Computers and communication–convergence or conflict? (192) 4
Pollard, J.R.: IEE Electronics Divisional Chairman 1973-74 (192) 4
Polymeric terminations (letter) 36
Porges, F.: Control applications (letter) (182) 11
Portability of appliances (letter) 65
Power distribution in industrial complexes by A.W. Bowyer 94
Power in the land 227
P.R., the art of (letter) 561
Practical ideas (letter) 374
Pratt, J.W.: Operating limits of d.c. machines 366
Premium awards (191) 18
Preparing engineers for a career by D.W. Daniel 222
Price, B.T.L.: Storage heaters (letter) 228
Private generation costs (letters) 169, 194
Process-control instrumentation by I.C. Hutcheon 123
Proc. IEE a misnomer? (letter) 374
Professional conduct (176) 6
Professional conduct (letters) (175) 7, (176) 5, (177) 4, (178) 4, (179) 4, (182) 10
Professionalism and politics 69
Protecting the purchaser (letter) 456
Prytherch, E.: Professional conduct (letter) (182) 10
Publicity (letter) 510
Publicity, 3–Communication in industry by E.G. Selmer 423
Pugsley, P.C.: Black marks (letter) 150

Q

Quaestor criticised (letter) 194
Quaestor praised (letter) 342
Quaestor: Random noise 20, 43, 56, 84, 98, 130, 151, 170, 195, 229, 249, 269, 296, 341, 377, 412, 435, 455, 482, 516, 537, 562
Quaestor revealed (letter) 169
Quaestor's black boxes (letter) 194
Quaestor's metric attack (letter) 344
Quaestor's quadraphonic query (letters) 36, 111, 169, 193, 228, 261, 297
Quaestor's smell (letter) 85

R

Radio aerial, the evolution of the by R.F. Pocock 120
Rainger, P.: CEEFAX–a broadcast information service 274
Random noise by Quaestor 20, 43, 56, 84, 98, 130, 151, 170, 195, 229, 249, 269, 296, 341, 377, 412, 435, 455, 482, 516, 537, 562
Rawll, R.H.: Vesting-day memories (letter) 150
Rauch, C.: Domestic hazards (letter) 248
Ray, A.I.A.: Curious motor (letter) 430
Reading, A.G.: Overhead lines for the Supergrid 352
Reading, A.G.: Professional conduct (letter) (177) 4
Relay technology, new trends in by P.R. Lappin 450
Remote control by computer by R.J.M. Grew 391
Rescue operations by H.A.V. Bulleid 469
Research and development, the importance of the individual in by R.E. Young 140
Resources of metals (letter) 64
Rhoden, G.M.: Subscription - rates (letter) (182) 10
Roberts, J.L.: Sales story (letter) 481
Robinson, A.K.: Poetry or verse? (letter) (179) 4
Robinson, O.D.: CEI survey (letter) (188) 3
Robinson, O.D.: Current problems (letter) 22
Rolls, R.G.: Modern techniques in digital communication 466
Roth, D.A.: High-speed transport (letter) 510
Roth, J.F. IEE Control & Automation Divisional Chairman 1973-74 (192) 4
Roth, J.F.: Out of the wilderness–the contribution of technology to a developing country (192) 4
Rowe, N.B.: Quaestor's quadraphonic query (letter) 228
Rules of conduct (letter) (194) 4

S

Sadler, E.H.: Driving ambition (letter) 344
Safety, electrical, engineering by W.F. Cooper 225
Sales story (letter) 481
Sandman, A.: High-speed transport (letter) 510
Scaife, F.N.: Curious motor (letter) 430
Scaife, F.N.: What is an engineer? (letter) (176) 5
Scott, D.: Storage heaters (letter) 129
Scroggie, M.G.: Electromagnetic paradox (letter) 456
Seat on the board, a by A.R. Cooper 41
Semiconductor devices in a hostile electrical environment by K.A.T. Knox 557
Semiconductor digital circuits from discrete transistors to I.s.i. by R. Naylor 178
Semiconductor revolution, the,–the social and economic impact of the transistor by W.E.J. Farvis 52
Semler, E.G.: Communication in industry 1. Management 13
Semler, E.G.: Communication in industry 2. Design 185
Semler, E.G.: Communication in industry 3. Publicity 423
Senile student by H. Walton 497
Sewell, B.F.: Domestic electric lamps (letter) 248
Shearer, A.B.: Why private generation? 37
Shockley, W.: Creative failure methodology 59
Short, H.: Typing mathematics (letter) 343
Signal generation, a systems approach to by D.C. Ayre 278
Sims, G.D., and Kemhadjian, H.A.: Engineering education–the French way 550
Slowey, E.J.: Engineering v. science (letter) 64
Smith, K.D.: Polymeric terminations (letter) 36
Smith, R.: Waste of time (letter) 374
Society and the engineer by M.W. Thring 127
Sougham, D.W.: Education for what? (letter) 535
Sougham, D.W.: Vesting-day memories (letter) 406
Soundproof wiring (letter) 374
Souter, J.B.: Choosing the right motor protection 476
Special General Meeting, 14th December 1972 (175) 16
Spencer, A.J., and Koscicecha, R.: Domestic wiring (letter) 248
Spence, R.: Typing mathematics (letter) 430
Spence, R.: Using the computer to teach–a new and simple approach 284
Starling, G.A.W.: Education for what? (letter) 535
Starling, G.A.W.: Inventors wanted (letter) 536
Starling, G.A.W.: Quaestor's black boxes (letter) 194
Static-invertor systems for emergency supplies by D. Finney 32
Stephens, M.N.B.: Picture transmission (letter) 343
Stevenson, D.: ASEE/UKAPE amalgamation (letter) (188) 3
Stevenson, D.: Trade unions (letter) 373
Storage heaters (letters) 129, 228, 342
Strong, N.G.: Management topics (letter) 111
Subscription rates (letters) (178) 4, (182) 10
Sunak, H.R.D.: Advances in fibre-optical communication systems 528
Supply and demand 69
Supply and demand in the employment sector 155
Supply and demand (letters) 149, 228
Surface research–the key to new materials 333
Swayne, J.W.S.: High-speed transport (letter) 536
Sweetman, J.M.: Machine as master (letter) 510
Swiss, M.: High-speed transport (letter) 510
Switchgear-engineering science as a profitable business by F.S. Gibbs 381
Switchgear, distribution, this business of by R.W. Blower 9

T

Taiga hydropower stations 227
Tait, H.J.: Exhibition views (letter) 85
Taylor, A.D.: Resources of metals (letter) 64
Taylor, J., and Bullock, C.J.: M.O.S. challenged (letter) 342
Teacher training (letter) (177) 4
Technical journalism (letter) 35
Technological revolution 135
Telecommunication development, international by W.J. Bray 73
Telecommunication, the impact of the transistor on by C.C. Pickett 495
Tendering for large electrical projects 201
Tholen, W.P.: Maintaining electrical machines–the need for systematic planning 159
Thomas, G.H.: Mathematics education (letter) 65
Thomas, J.B.: Engineering responsibility (letter) 194
Thomas, N.C.: Quaestor praised (letter) 342
Thompson, P.S.: Double standards? (letter) (187) 3
Thompson, P.S.: Professional conduct (letter) (175) 7
Thring, M.W.: Society and the engineer 127
Thring, M.W.: Towards a creative society 522
Through a glass lightly (letter) 35
Thyristors in action–motor-control applications by P.A. Bennett and G. Jones 399
Thyristor variable-speed drives by M. Mortimer 525
Top secretaries by H.A.V. Bulleid 241
Total energy a realistic answer to fuel conservation by J.J. Crawford 210
Total energy (letter) 344
Total-technology degree 491
Towards a creative society by M.W. Thring 522
Trade unionism, the future pattern of by V. Feather, 262
Trade unions (letters) 374, (194) 18
Traffic control and surveillance on motorways by K.W. Huddart 257
Transfer dilemma (letter) (193) 23
Transistor anniversary 47
Transistor, the social and economic impact of the–the semiconductor revolution by W.E.J. Farvis 52
Transmission-line-impedance measurement at microwave frequencies by J.W. Gould 363
Turbine generators, large–the British story by L.W. James 304
Turnbull, J.C.: E & P delivery (letter) (176) 5
Turnbull, J.C.: Professional conduct (letter) (179) 4
Turner, H.J.: Driving ambition (letter) 261
Turner, H.J.: Quaestor revealed (letter) 169
Typing mathematics (letters) 169, 343, 430

U

Underground cables, the realities of by H.K. Beale 163
Unexplained phenomenon (letters) 21, 64
Using the computer to teach–a new and simple approach by R. Spence 284
Utilisation of time 201

V

Value for money? (letter) (194) 4
Vanishing trick (letter) 430
Varney, J.C.: Quaestor's quadraphonic query (letter) 193
Vesting-day memories (letters) 150, 194, 261, 343, 406

W

Wainscott, P.D.: Quaestor's quadraphonic query (letter) 193
Walter, D.J.: Typing mathematics (letter) 169
Walton, H.: The senile student 497
Waste of time (letters) 374, 481
Welbourn, D.B.: Divine nature (letter) 111
Welbourn, D.B.: Supply and demand (letter) 149
West, A.L.: Professional conduct (letter) (176) 5
West, R.A.: Motors in industry (letter) 22
We will use coal if the price is right by A. Hawkins 108
What is an engineer? (letters) (176) 5
Whole series of breakthroughs, a–invention of the transistor by J. Bardeen 57
Why, J.F.: Alternatives to coal (letter) 561
Why private generation? by A.B. Shearer 37
Wilby, W.P.L.: Education for what? (letter) 535
Wilkinson, K.J.R.: Electromagnetic paradox (letter) 561
Williams, M.: M.O.S. challenge (letter) 481
Williams, M.: M.O.S. system reduces exhaust pollution 264
Wilson, P.D.C.: Career prospects in Commonwealth universities 82
Winding temperatures (letters) 23, 85
Wolfe, G.M.: Better protection (letter) 481
Wood, B.: Large turboalternators (letter) 430
Wrigley, M.F.: Subscription rates (letter) (178) 4

Y

Yardley, A.A.R.: Quaestor's quadraphonic query (letter) 193
Year ahead, the 1
Yeomans, K.A.: High-speed transport (letter) 536
Young, I.R., and Ince, R.H. (see Ince)
Young, K.J.: Laboratory space (letter) 406
Young, K.J.: Portability of appliances (letter) 65
Young, R.E.: The importance of the individual in research and development 140

Some recent books

Booty, B.: Guide to nuclear physics 375
Brown, A.R., and Sampson, W.A.: Program debugging 404
Gilford, C.: Acoustics for radio and television studios (IEE Monograph 11) 131
Gooch, C.H.: Injection electroluminescent devices 376
Harrop, P.J.: Dielectrics 131
Hawes, M.A.: Electromagnetic machines (Vols. I and 2) 213
IEE Conf. Publ. 94 (Pt. 1) Diagnostic testing of high-voltage power apparatus in service 213
IEE Conf. Publ. 95. Satellite systems for mobile communications and surveillance 214
IEE Conf. Publ. 98. Propagation of radio waves at frequencies above 10 GHz 404
Jowett, C.E.: Electronic engineering process 131
Lewis, R.: Electrical engineering principles and testing methods 403
Lock, D. (Editor): Engineer's handbook of management techniques 375
Moss, T.S., Burrell, G.J., and Ellis, B.: Semiconductor optoelectronics 375
Pawley, E.: BBC engineering 1922-1972 213
Scanlan, J.O., and Levy, R.: Circuit theory–Vol.2 403
Skinner, R.N.: Launching new products in competitive markets 131
Taylor, D.E.: Electronic engineering mathematics 214
Wearne, S.H.: Principles of engineering organisation 403
Wolfendale, E. (Editor): M.O.S. integrated-circuit design 375

Published by Institution of Electrical Engineers and printed by Flarepath Printers Ltd., S. Albans, Herts., England.